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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/708,159	11/08/2000	Toshiaki Yasue	JP919990097US1	1032

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EXAMINER

RUTTEN, JAMES D

ART UNIT	PAPER NUMBER
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2122

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/708,159

Applicant(s)

YASUE ET AL.

Examiner

J. Derek Rutten

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

1. Applicants' amendment dated October 17, 2003, responding to the July 17 Office action provided in the rejection of claims 1-4, wherein claims 1, 3, and 4 have been amended. Claims 1-4 remain pending in the application and have been fully considered by the examiner.

Applicants' primarily arguing for the claims are enabled by the originally filed specification with respect to the current amendments, and that motivation is provided for the method of claims 1 and 4, particularly on page 7, lines 8-13 and has additionally referenced enabling disclosure on page 7 lines 15-16, 18-22, and Figures 1-8 (see page 9 of the amendment and remarks), but are not persuasive, as will be addressed below.

Accordingly, the rejection of the claims in the previous Office action is maintained and **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Response to Remarks

2. As per applicants' arguments, Applicant has argued, in substance:

(A) Page 9 paragraph 2: *The motivation for performing the steps that are performed is summarized on page 7 of the specification where it explains that transfer points affect code quality since certain optimizations cannot be performed.*

Response:

While the referred statement provides some insight as to why one would be interested in transfer points, it does not clearly describe why or how their presence would resolve past problems (see the originally filed specification page 7 lines 8-13) that affect code quality. Further, the language on page 14 lines 28-29 of the originally filed specification which defines a transfer point does not describe how one could find a transfer point, or how they are different from any other arbitrary point of code. Furthermore, page 10 paragraph 1 of the originally filed specification merely states "The code for the method is divided to obtain a Basic Block (hereinafter simply referred to as a BB)... A transfer point designated by the interpreter is defined as the first in the BB." However, the phrase "the first" has not been defined as such first point, word, and/or line of code, and further, the passage does not detail how or why a transfer point was designated to mark as the start of a basic block.

Also, this does not explain how and why the process of moving and copying is advantageous, or the limitations encountered when certain optimizations "pass beyond" a transfer point as cited in the claims without a problem occurring. While the originally filed specification contains a mere recitation of steps for dynamic compilation, it does not

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provide the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to make and use it.

(B) Page 9 paragraph 4: *Even if this general description is deemed not enabling, the specifics are set out at length in Figures 1-8, so that the problem of enablement does not arise.*

Response:

The drawings suffer from the same limitations previously addressed. Specifically, they merely detail process steps without showing how or why certain elements are used without a problem occurring.. Figure 5 discloses searching for transfer points, but does not disclose how to search for one, and/or what to look for. Figures 6 and 7 disclose moving transfer points out of a loop, but do not further disclose the relationship of transfer points, basic blocks, or points that post-dominate them so that a problem does not occur. Further, they do not disclose how and when privatization, common sub-expression elimination, and moving of code can “pass beyond” a transfer point without a problem occurring (as in the past reference to page 7 lines 8-13 of the originally filed specification). As such, the drawings do not provide any additional information from the originally filed specification for such manner and process of making and using, in such full, clear, concise, and exact terms as to enable any person skilled in the art to make and use as claimed.

Drawings

3. The drawings are objected to because element S320 in Figure 7 recites “without modifying loop”, but should instead recite --while modifying loop--. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
4. The drawings were received on October 20, 2003. These drawings are acceptable for examination purposes only.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The selection of “transfer points” and the motivation and benefit of moving and/or copying them or points which postdominate them is not clearly described. The specification attempts to define the term “transfer point”, but does not clearly convey the meaning (page 4 line 4, page 8 paragraph 1, page 14 line 28). The examiner has attempted to interpret the term to mean any language construct producing an assembly

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branch instruction, but it is not clear how and why these points are manipulated in the invention.

Since the scope of the claims could not be reasonably determined due to a lack of an enabling disclosure, no rejections of the claims have been made based on the prior art.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claims 1 and 4 recite the limitation "the privatization" in lines 12 and 13. There is insufficient antecedent basis for this limitation in the claim. In the interests of further examination, this limitation has been interpreted as --a privatization--.

10. Claims 2 and 3 are dependent upon claim 1 and suffer from the same limitations recited above in the rejection of claim 1.

35 USC § 101

11. Examiner has noted that Claim 4, merely claimed as a program for transferring, that is, descriptions or expressions of such a program and that is descriptive material *per se*, non-functional descriptive material, and is not statutory because it is not a physical "thing" nor a statutory process, as there are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and

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other claimed aspects of the invention which permit the computer program's functionality to be realized. Since a computer program is merely a set of instructions capable of being executed by a computer, the program itself is not a process, without the computer-readable medium needed to realize the computer program's functionality. In contrast, a claimed computer-readable medium encoded with a computer program defines structural and functional interrelationships between the computer program and the medium which permit the computer program's functionality to be realized, and is this statutory. *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760. *In re Sarkar*, 588 F.2d 1330, 1333, 200 USPQ 132, 137 (CCPA 1978). See MPEP § 2106(IV)(B)(1)(a).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 5,652,889 to Sites discloses transferring a process from interpreted execution to natively compiled execution.

U.S. Patent 5,940,622 to Patel discloses code analysis and optimization for the reduction of non-sequential execution, similar to function inlining.

U.S. Patent 5,978,588 to Wallace discloses adaptive optimization using cfg's and block placement/reordering.

U.S. Patent 6,463,582 to Lethin et al. discloses an optimizing dynamic compiler.

"Compilers: Principles, Techniques, and Tools by Aho discloses common code optimizations.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Derek Rutten whose telephone number is (703) 605-5233. The examiner can normally be reached on M-F 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (703)305-4552. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)306-5484.

jdr



ANTONY NGUYEN-BA
PRIMARY EXAMINER